

In The Claims

Kindly enter the claim amendments, without prejudice, as set forth below. A complete listing of the claims is provided, with a parenthetical indication of the status of each claim, and markings to show current changes.

1. (currently amended) A system for the cross-correlation of data, comprising:
a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;
wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with ~~substantially~~ every other computer PC_i ;
each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;
data X_i being divisible into n partial data units $X_i(j)$, j being an integer from 0 to $n-1$;
data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;
a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;
wherein each computer PC_i of said plurality n is configured for a first exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is idle during said first exchange; and
wherein each computer PC_i of said plurality n is configured for an additional exchange of additional partial data units with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is idle during said additional exchange.
2. (previously presented) The system of claim 1, wherein each computer PC_i of said plurality n is configured to exchange with a partner computer $n-1$ partial data units when n is even, and n partial data units when n is odd.
3. (currently amended) A system for the cross-correlation of data, comprising:

a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector configured for full duplex transmission and configured for a switching function, so that each computer PC_i is configured for direct data exchange with ~~substantially~~ every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;

data X_i being divisible into n partial data units $X_i(j)$, j being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;

wherein each computer PC_i of said plurality n is configured for partner exchange of $n-1$ partial data units with a partner computer, so that no more than one computer PC_i is left idle during the partner exchange; and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once.

4. (currently amended) A system for the cross-correlation of data, comprising:

a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with ~~substantially~~ every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;

data X_i being divisible into n partial data units $X_i(m)$, m being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;

wherein each computer PC_i of said plurality n is configured for partner exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer is left idle during the partner exchange; and

wherein each computer PC_i of said plurality n is configured to exchange additional partial data units with a partner computer chosen from said plurality n of computers.

5. (previously presented) The system of claim 4, comprising an α turn, α being an integer of 0 and more, wherein the α turn includes partial data units, numbering from $n \times \alpha$ to $(n \times \alpha + n - 1)$, and comprising partial data unit $X_{i(k + n \times \alpha)}$, the partial data unit $X_{i(k + n \times \alpha)}$ being located on each computer PC_i , wherein the computer PC_k is configured for the cross correlation processing of partial data unit $X_{i(k + n \times \alpha)}$.

6. (previously presented) A system according to claims 4 or 5, wherein each computer PC_i of said plurality n is configured for partner exchange of $n-1$ partial data units with a partner computer, so that no computer is left idle, when n is an even number;

wherein each computer PC_i of said plurality n is configured for partner exchange of n partial data units with a partner computer, so that no more than one computer is left idle, when n is an odd number; and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once.

7. (currently amended) A system for the cross-correlation of data, comprising:
a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for

storing data X_i ;

data X_i being divisible into n partial data units $X_i(m)$, m being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;

wherein each computer PC_i of said plurality n is configured for partner exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is left idle during the partner exchange;

wherein each computer PC_i of said plurality n is configured to exchange $n-1$ partial data units with a partner computer; and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once.

8. (currently amended) ~~A system as in any one of the preceding claims.~~ The system of claim 1, in which the computers PC_i of said plurality n are general purpose computers.

9. (currently amended) ~~A system as in any one of the preceding claims.~~ The system of claim 1, comprising a network medium configured for full duplex communications.

10. (currently amended) ~~A system as in any one of the preceding claims.~~ The system of claim 1, in which said data are time series data recorded from radio telescopes.

11. (currently amended) A system for the cross-correlation of data, comprising:
a fixed plurality n of computers PC_i , n being a real number which is equal to greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for

storing data X_i ;

data X_i being divisible into n partial data units $X_i(j)$, j being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$; and

wherein each computer PC_i of said plurality n is configured for partner exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is left idle during the partner exchange.

12. (currently amended) A system for the cross-correlation of data, comprising:

a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;

data X_i being divisible into n partial data units $X_i(m)$, m being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$; and

wherein each computer PC_i of said plurality n is configured for partner exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is left idle during the partner exchange.

13. (currently amended) A system for the cross-correlation of data, comprising:

a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector

with a switch, so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;

data X_i being divisible into n partial data units $X_i(j)$, j being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;

wherein each computer PC_i of said plurality n is configured for partner exchange of a partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is left idle during the partner exchange; and

wherein each computer PC_i of said plurality n is configured to exchange $n-1$ partial data units with a partner computer; and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once.

14. (currently amended) A system for the cross-correlation of data, comprising:

a fixed plurality n of computers PC_i , n being a real number which is equal to or greater than 2, and i being an integer from 0 to $n-1$;

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch, so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i ;

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i ;

data X_i being divisible into n partial data units $X_i(j)$, j being an integer from 0 to $n-1$;

data X_i being divisible into n partial data units $X_i(k)$, k being an integer from 0 to $n-1$;

a computer PC_k , wherein computer PC_k is configured for cross-correlation processing of partial data $X_i(k)$;

wherein each computer PC_i of said plurality n is configured for partner exchange of a

partial data unit with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is left idle during the partner exchange;

wherein each computer PC_i of said plurality n is configured to exchange $n-1$ partial data units with a partner computer; and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once.

15. (previously presented) A system as in one of claims 11-14, comprising a network medium configured for full duplex communications.

16. (previously presented) The system of claim 1, wherein n is an odd number.

17. (previously presented) The system of claim 1, wherein $n = 2^k + 1$, wherein k is an integer greater than 0.

18. (previously presented) The system of claim 1, wherein $n = 2^k - 1$, wherein k is an integer greater than 0.

19. (previously presented) The system of claim 1, wherein each partial data unit is exchanged only once.

20. (previously presented) The system of claim 1, wherein in each data exchange, the volume of the data exchanged remains constant.